LISTING OF CLAIMS

The following is a listing of the claims that will replace all prior versions of the claims in this patent application:

Claims 1-50 cancelled.

51. (Currently Amended) A SiAlON ceramic body made from a starting powder mixture that includes silicon nitride powder and one or more powders that provide aluminum, oxygen, nitrogen, and a rare earth to the SiAlON ceramic body, the SiAlON ceramic body comprising:

a two phase composite comprising an alpha prime SiAlON phase and a beta prime SiAlON phase, and the alpha prime SiAlON phase containing the rare earth therein;

the alpha prime SiAlON phase being present in an amount greater than or equal to about 20 weight percent of the two phase composite;

the starting silicon nitride powder comprises at least about 70 weight percent of the starting powder mixture, the silicon nitride powder in the starting powder mixture ~~containing~~ contains beta-silicon nitride powder wherein the beta-silicon nitride powder comprises less than or equal to about 1.6 weight percent of the starting silicon nitride powder; and

the SiAlON ceramic body having a Vickers hardness (18.5 Kg load) equal to or greater than about 16.5 GPa, and a fracture toughness (K_{IC}) equal to or greater than about 5.5 $MPam^{1/2}$.

52. (Currently Amended) The SiAlON ceramic body of claim 51 wherein at least some of ~~the~~ a silicon component of the alpha prime SiAlON phase originates form the silicon nitride powder in the starting powder mixture, and at least some of the silicon component of the beta prime SiAlON phase originates from the silicon nitride powder in the starting powder mixture.

53. (Previously Presented) The SiAlON ceramic body of claim 51 having a Vickers hardness (18.5 Kg load) equal to at least about 17.5 GPa and a fracture toughness as measured by the Evans & Charles method equal to at least about 6.0 $MPa \bullet m^{1/2}$.

54. (Previously Presented) The SiAlON ceramic body of claim 51 having a Vickers hardness (18.5 Kg load) equal to at least about 18.5 GPa and a fracture toughness as measured by the Evans & Charles method equal to at least about 7.0 $MPa \bullet m^{1/2}$.

55. (Previously Presented) The SiAlON ceramic body of claim 51 having a Vickers hardness (18.5 Kg load) equal to at least about 19.5 GPa and a fracture toughness as measured by the Evans & Charles method equal to at least about 8.0 $MPa \bullet m^{1/2}$.

56. (Previously Presented) The SiAlON ceramic body of claim 51 wherein the beta prime SiAlON phase being of the formula $Si_{6-z}Al_zO_zN_{8-z}$ wherein z is greater than 0.3 and less than 1.5.

57. (Previously Presented) The SiAlON ceramic body of claim 51 wherein z is greater than 0.7 and less than 1.5.

58. (Previously Presented) The SiAlON ceramic body of claim 51 wherein z is greater than 0.3 and less than 0.6.

59. (Previously Presented) The SiAlON ceramic body of claim 51 wherein the alpha prime SiAlON phase being present in an amount between about 60 weight percent and about 80 weight percent of the two phase composite.

60. (Previously Presented) The SiAlON ceramic body of claim 51 wherein the alpha prime SiAlON phase being present in an amount between about 45 weight percent and about 85 weight percent of the two phase composite.

61. (Currently Amended) ~~The SiAlON ceramic body of claim 51 wherein~~ A SiAlON ceramic body made from a starting powder mixture that includes silicon nitride powder and one or more powders that provide aluminum, oxygen, nitrogen, and a rare earth to the SiAlON ceramic body, the SiAlON ceramic body comprising:

a two phase composite comprising an alpha prime SiAlON phase and a beta prime SiAlON phase, and the alpha prime SiAlON phase containing the rare earth therein;

the alpha prime SiAlON phase being present in an amount greater than or equal to about 20 weight percent of the two phase composite;

the starting silicon nitride powder comprises at least about 70 weight percent of the starting powder mixture;

the SiAlON ceramic body having a Vickers hardness (18.5 Kg load) equal to or greater than about 16.5 GPa, and a fracture toughness (K_{IC}) equal to or greater than about 5.5 $MPam^{1/2}$; and

the silicon nitride starting powder contains about zero weight percent beta silicon nitride.

62. (Previously Presented) The SiAlON ceramic body of claim 51 wherein the SiAlON ceramic body further includes an integranular phase comprising one or more of a glassy phase and an integranular crystalline phase.

63. (Previously Presented) The SiAlON ceramic body of claim 51 wherein the rare earth is selected from the group comprising ytterbium, erbium, thulium, scandium and lutetium.

64. (Previously Presented) The SiAlON ceramic body of claim 51 wherein the rare earth comprises ytterbium.

65. (Previously Presented) A ceramic body made from a starting powder mixture that includes silicon nitride powder, aluminum nitride powder, alumina powder, and ytterbium oxide powder, the ceramic body comprising:

a two phase composite comprising alpha prime SiAlON phase and beta prime SiAlON phase, and the alpha prime SiAlON phase containing ytterbium therein;

the alpha prime SiAlON phase being present in an amount between about 25 weight percent and about 50 weight percent of the two phase composite;

the sintered ceramic body having a fracture toughness (K_{IC}) of greater than or equal to about 6.0 $MPam^{1/2}$;

the sintered ceramic body having a Vickers hardness (18.5 kg load) of greater than or equal to about 17.0 GPa, and

the starting silicon nitride powder has less than or equal to about 1.6 weight percent beta-silicon nitride.

66. (Previously Presented) The ceramic body of claim 65 wherein the content of the starting alumina powder being greater than the content of the starting aluminum nitride powder.

67. (Previously Presented) The ceramic body of claim 65 wherein the starting silicon nitride powder contains about zero beta silicon nitride.

68. (Previously Presented) The ceramic body of claim 65 having a fracture toughness as measured by the Evans & Charles method equal to at least about 7.0 $MPa \bullet m^{1/2}$.

69. (Previously Presented) The ceramic body of claim 65 having a fracture toughness as measured by the Evans & Charles method equal to at least about 8.0 $MPa \bullet m^{1/2}$.

70. (Previously Presented) The ceramic body of claim 65 wherein the beta prime SiAlON phase being of the formula $Si_{6-z}Al_zO_zN_{8-z}$ wherein z is greater than 0.3 and less than 1.5.

71. (Previously Presented) The ceramic body of claim 70 wherein z is greater than 0.7 and less than 1.5.

72. (Previously Presented) The ceramic body of claim 70 wherein z is greater than 0.3 and less than 0.6.

73. (Currently Amended) A ceramic body made from a starting powder mixture that includes silicon nitride powder, ytterbium oxide powder, and at least one or more powders together containing aluminum, oxygen and nitrogen, the ceramic body comprising:

a two phase composite comprising alpha prime SiAlON phase and beta prime SiAlON phase, and the alpha prime phase containing ytterbium therein;

the alpha prime SiAlON phase being present in an amount greater than or equal to about 20 weight percent of the two phase composite;

at least some of ~~the~~ a silicon component of the alpha prime SiAlON phase originates ~~form~~ from the silicon nitride powder in the starting powder mixture, and at least some of the silicon component of the beta prime SiAlON phase originates from the silicon nitride powder in the starting powder mixture;

the starting silicon nitride powder comprises at least about 70 weight percent of the starting powder mixture, the silicon nitride powder in the starting powder mixture ~~containing~~ contains beta-silicon nitride powder wherein the beta-silicon nitride powder comprises less than or equal to about 1.6 weight percent of the starting silicon nitride powder.

74. (Currently Amended) ~~The ceramic body of claim 73 wherein~~ A ceramic body made from a starting powder mixture that includes silicon nitride powder, ytterbium oxide powder, and at least one or more powders together containing aluminum, oxygen and nitrogen, the ceramic body comprising:

a two phase composite comprising alpha prime SiAlON phase and beta prime SiAlON phase, and the alpha prime phase containing ytterbium therein;

the alpha prime SiAlON phase being present in an amount greater than or equal to about 20 weight percent of the two phase composite;

at least some of a silicon component of the alpha prime SiAlON phase originates form the silicon nitride powder in the starting powder mixture, and at least some of the silicon component of the beta prime SiAlON phase originates from the silicon nitride powder in the starting powder mixture;

the starting silicon nitride powder comprises at least about 70 weight percent of the starting powder mixture; and

the starting silicon nitride powder contains about zero weight percent beta silicon nitride.

75 (Previously Presented) The ceramic body of claim 73 wherein the SiAlON ceramic body further includes an intergranular phase comprising one or more of a glassy phase and an intergranular crystalline phase.

Claims 76 and 77 currently cancelled.

78. (New) The SiAlON ceramic body of claim 51 further including a coating scheme on the SiAlON ceramic body comprising one or more coating layers.

79. (New) The SiAlON ceramic body of claim 78 wherein the coating scheme includes a coating layer of alumina applied by chemical vapor deposition.

80. (New) The SiAlON ceramic body of claim 79 wherein the alumina coating layer is applied on the SiAlON ceramic body.

81. (New) The SiAlON ceramic body of claim 78 wherein the coating scheme includes a coating layer of titanium aluminum nitride applied by physical vapor deposition.

82. (New) The SiAlON ceramic body of claim 61 wherein the rare earth is selected from the group comprising ytterbium, erbium, thulium, scandium and lutetium.

83. (New) A SiAlON ceramic body made from a starting powder mixture that includes silicon nitride powder and one or more powders that provide aluminum, oxygen, nitrogen, and two or more rare earths to the SiAlON ceramic body, the SiAlON ceramic body comprising:

a two phase composite comprising an alpha prime SiAlON phase and a beta prime SiAlON phase, and the alpha prime SiAlON phase containing the rare earth therein;

the alpha prime SiAlON phase being present in an amount greater than or equal to about 20 weight percent of the two phase composite;

the starting silicon nitride powder comprises at least about 70 weight percent of the starting powder mixture, the silicon nitride powder in the starting powder mixture contains beta-silicon nitride powder wherein the beta-silicon nitride powder comprises less than or equal to about 1.6 weight percent of the starting silicon nitride powder; and

the SiAlON ceramic body having a Vickers hardness (18.5 Kg load) equal to or greater than about 16.5 GPa, and a fracture toughness (K_{IC}) equal to or greater than about 5.5 $MPam^{1/2}$.

84. (New) The SiAlON ceramic body of claim 83 wherein the rare earths comprise two or more of the rare earths selected from the group comprising ytterbium, erbium, thulium, scandium and lutetium.

85. (New) The SiAlON ceramic body of claim 83 wherein the silicon nitride starting powder contains about zero weight percent beta silicon nitride.

86. (New) The SiAlON ceramic body of claim 85 wherein the rare earths comprise two or more of the rare earths selected from the group comprising ytterbium, erbium, thulium, scandium and lutetium.

87. (New) The ceramic body of claim 83 further including a coating scheme on the ceramic body comprising one or more coating layers.

88. (New) The ceramic body of claim 87 wherein the coating scheme includes a coating layer of alumina applied by chemical vapor deposition.

89. (New) The ceramic body of claim 88 wherein the alumina coating layer is applied on the ceramic body.

90. (New) The ceramic body of claim 87 wherein the coating scheme includes a coating layer of titanium aluminum nitride applied by chemical vapor deposition.

91. (New) A SiAlON ceramic body made from a starting powder mixture that includes silicon nitride powder and one or more powders that provide aluminum, oxygen, nitrogen, and ytterbium to the SiAlON ceramic body, the SiAlON ceramic body comprising:

a two phase composite comprising an alpha prime SiAlON phase that has the formula $Yb_x Si_{12-(m+n)} Al_{(m+n)} O_n N_{16-n}$ wherein x is less than or equal to about 0.32 and "m+n" is less than or equal to about 1.65; and a beta prime SiAlON phase that has the formula $Si_{6-z} Al_z O_z N_{8-z}$ wherein z is greater than about 0.470;

the alpha prime SiAlON phase being present in an amount greater than or equal to about 45 weight percent of the two phase composite;

the starting silicon nitride powder comprises at least about 70 weight percent of the starting powder mixture, the silicon nitride powder in the starting powder mixture contains beta-silicon nitride powder wherein the beta-silicon nitride powder comprises less than or equal to about 1.6 weight percent of the starting silicon nitride powder; and

the SiAlON ceramic body having a Vickers hardness (18.5 Kg load) equal to or greater than about 16.5 GPa, and a fracture toughness (K_{IC}) equal to or greater than about 5.5 $MPam^{1/2}$.

92. (New) The SiAlON ceramic body of claim 91 wherein the ceramic body further including a grain boundary that contains less than or equal to about 0.0270 moles of ytterbium.

93. (New) A SiAlON ceramic body made from a starting powder mixture that includes silicon nitride powder and one or more powders that provide aluminum, oxygen, nitrogen, and ytterbium to the SiAlON ceramic body, the SiAlON ceramic body comprising:

a two phase composite comprising an alpha prime SiAlON phase that has the formula $Yb_x Si_{12-(m+n)} Al_{(m+n)} O_n N_{16-n}$ wherein x is less than or equal to about 0.30 and "m+n" is less than or equal to about 1.55; and a beta prime SiAlON phase that has the formula $Si_{6-z} Al_z O_z N_{8-z}$ wherein z is greater than about 0.500;

the alpha prime SiAlON phase being present in an amount greater than or equal to about 45 weight percent of the two phase composite;

the starting silicon nitride powder comprises at least about 70 weight percent of the starting powder mixture, the silicon nitride powder in the starting powder mixture contains beta-silicon nitride powder wherein the beta-silicon nitride powder comprises about zero weight percent of the starting silicon nitride powder; and

the SiAlON ceramic body having a Vickers hardness (18.5 Kg load) equal to or greater than about 16.5 GPa, and a fracture toughness (K_{IC}) equal to or greater than about 5.5 $MPam^{1/2}$.

94. (New) The SiAlON ceramic body of claim 93 wherein the ceramic body further including a grain boundary that contains less than or equal to about 0.0225 moles of ytterbium.

95. (New) The SiAlON ceramic body of claim 94 wherein the beta SiAlON phase has a "z" value greater than or equal to about 0.520.

96. (New) The SiAlON ceramic body of claim 94 wherein the alpha prime SiAlON phase being present in an amount greater than or equal to about 60 weight percent of the two phase composite.